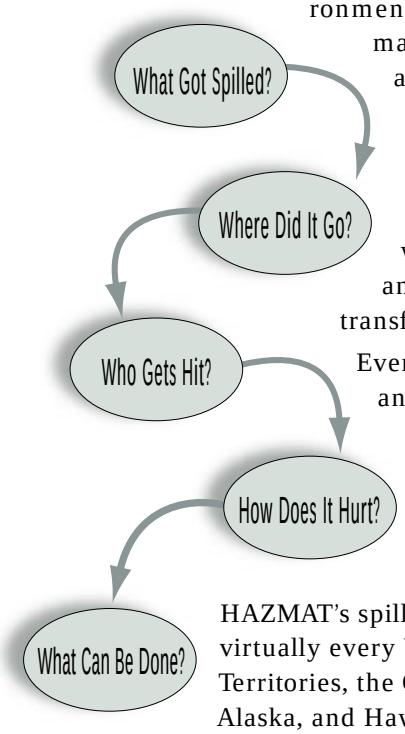
Scientific Support Team

Multi-Disciplinary Spill Response

NOAA's Hazardous Materials Response Division strives to reduce risks to coastal habitats and resources from oil and hazardous chemical spills. HAZMAT's multi-disciplinary Scientific Support Team has decades of experience in responding to oil spill emergencies. Led by its regionally based Scientific Support Coordinators, HAZMAT's response to spill emergencies has gained a reputation for rapid, well-thought-out, yet cost-effective environmental protection decisions. Ultimately, HAZMAT strives to advance the state of knowledge about oil and hazardous materials interactions and effects in coastal environments by integrating response efforts with research, development, and international technology transfer.



Every year, millions of gallons of oil and other chemicals spill into U.S. waters, often caused by marine vessel accidents or leaked by hazardous waste sites across the nation into environmentally sensitive habitats.

HAZMAT's spill response efforts encompass virtually every U.S. coast, including Trust Territories, the Great Lakes, the Gulf of Mexico, Alaska, and Hawaii. NOAA scientists work closely with Federal On-Scene Coordinators to respond to about 100 accidental spills each year.

HAZMAT provides critical advice on science and other natural resource issues to the On-Scene Coordinator during the Federal government's responses to coastal oil and hazardous materials spills. Scientific Support Coordinators lead the HAZMAT team at spills, drawing on the team's spill trajectory estimates, chemical hazards analyses, and assessments of the sensitivity of biological and human-use resources to help the OSC make timely operational decisions.

What got spilled? Where will it go? Who will it hit? How can the impacts be reduced? At each spill, HAZMAT's interdisciplinary scientific team strives to answer these questions, working with industry and local governments to select cost-effective, environmentally sound cleanup plans.

What got spilled?

HAZMAT chemists evaluate the environmental hazards associated with chemical releases to predict pollution movement, resources at risk, and possible routes of human exposure. During an oil spill, efforts focus on oil composition, oil weathering, and suitability to dispersion, bioremediation, or burning. Chemists may be tasked with designing sampling protocols for on-scene conditions, identifying resources for sample analysis, and interpreting and verifying analytical results.

Where will it go?

The trajectory team gives the Scientific Support Coordinator information on a spill's projected movement and behavior in the water or air. The trajectory analysis team members work together to develop estimates that combine visual spill observations made from aircraft overflights or remote sensing platforms with computer model calculations that include observed, predicted, and statistical information on weather and ocean currents.

Information managers maintain a communication system to support scientific aspects of response operations. The team produces information needed to support operational decisions, present and display response recommendations in paper and electronic forms, and document data collected as part of the response effort. One of the team's most important functions is to produce information products supporting operational briefings. Examples include maps of oil locations based on overflight observations, maps that identify the location and extent of shoreline oiling, and progress reports on shoreline cleanup operations.

Who will it hit? How can the impacts be reduced?

HAZMAT's resources at risk specialists advise on environmental effects, resources at risk, and the suitability of mitigation measures. These may involve complex decisions associated with natural resource protection priorities and shoreline cleanup strategies. Team members evaluate the most environmentally sound and effective combination of mechanical countermeasures, chemical countermeasures, bioremediation, in-situ burning, and natural recovery for protecting sensitive resources; and provide expertise on long-term biological resource issues, focusing on sensitive habitats, endangered species, and proper testing and operational monitoring of new technologies and alternative treatment methods. Team members focus on ensuring scientific credibility of assessments, prioritizing issues, evaluating appropriate treatment technologies, evaluating the influence of natural perturbations, conducting long-term follow-up, and reporting lessons learned.

In the last decade, HAZMAT's scientific support team has responded to major spills, including the 1989 *Exxon Valdez* in Prince William Sound, the *North Cape-Scandia* spill off the Rhode Island coast in the winter of 1996, the 1997 *Kuroshima* spill off Dutch Harbor, Alaska, and the 1999 *New Carissa* spill in Coos Bay, Oregon. The team has also lent its expertise to international spill responses, ranging from the 1978 *Amoco Cadiz* spill off France to the 1991 Arabian Gulf oil well fires and oil spill, to the 1996 *San Jorge* spill off Uruguay, and the *Nakhodka* spill off Japan in 1997.

For additional information, visit our website at **http://response.restoration.noaa.gov**

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